Whence, making $P=\frac{m}{a}$, $Q=\frac{m}{a^2}-\frac{2n}{b}$, $R=\frac{m}{a^3}+\frac{3p}{c}$, $S=\frac{m}{a^4}+\frac{2n}{b^2}-\frac{4q}{d}$, $T=\frac{m}{a^5}+\frac{5r}{e}$, &c. and aſſuming $A+Bx+Cx^2+Dx^3+Ex^4$, &c. to expreſs the ſeries ſought, the ſeveral values of A, B, C, D, &c. will be exhibited by the very equations brought out in the reſolution of the preceding problem.

V. *A Letter from* George Bayly *M. D. of* Chicheſter, *to* Henry Pemberton *M. D. F. R. S. &c. of the Uſe of the* Bark *in the* Small-Pox.

Dear Sir,

Read Jan. 10. 1750. THE caſe I lately mention'd to you in converſation, of which you deſired a more particular account, is, as far as I have been able to recollect at this diſtance of time, as follows.

The patient, a gentlewoman of a fat corpulent habit, and healthy conſtitution, but 73 years of age, was, on the 6 day of December 1742, ſeiz'd with the common ſymptoms of a fever, attended with a ſudden great loſs of ſtrength; ſo that, being carried to bed, ſhe was not able to ſit upright in it for the leaſt ſpace of time, without being held up by her aſſiſtant.

She became afterwards delirious, and on the 4th day vomited much, and puſtules of the ſmall-pox appeared, which gradually became more numerous, and increaſed in bigneſs. The puſtules however were large, diſtinct, and not in great number. She went on well enough for three days from the firſt eruption; the vomiting quickly ceaſed, and we began to promiſe ourſelves that all danger would ſoon be over: but on the 8 day the puſtules were at a ſtand, and every thing went wrong: whereupon I order'd veſicatories to be applied to the arms, and warm cordial medicines in good doſes to be given, and often repeated, in order to promote the growth of the puſtules, and bring them to maturation.

We proceeded two days in this method without effect; on the contrary ſhe grew worſe; and on the 10th day the puſtules were every-where ſunk, and in the face appeared quite dry and ſhriveled; ſhe ſwallowed with extreme difficulty, had no remaining ſtrength, and ſeemed to every one about her paſt all hopes of recovery: I myſelf thought ſhe would not live a day, or ſcarce 12 hours, longer. The apothecary, who was her ſon, ſeeing the extreme danger of his mother, and how ineffectual my endeavours had been to raiſe the puſtules, deſired to know, if I could think of any thing farther to anſwer this purpoſe? I propoſed to try, if he pleaſed, the *Cortex Peruvianus*, but without taking upon me to anſwer for the event. He readily conſenting, I preſcribed as follows:

Applicentur Empl. Veſicator. Tibiis internis.

℞ *Cort.*

℞ *Cort. Peruv. pulv.* ʒſs. *Serpent. Virgin.* gr. iij. *Aq. Lact. alexit.* ʒiſs. *Pæon. c.* ʒij. *Syr. Pæon. mar.* ʒiij. *M. f. hauſt. mox exhibend. et omni trihorio repetend.*

Soon after taking the ſecond draught ſhe was plainly alter'd for the better; in 8 hours very much amended; and within 24 hours was freed from the moſt dangerous ſymptoms; the puſtules, which had been ſunk and wither'd, gradually riſing nearly from the time of taking the bark.

She perſiſted in taking the draughts from the 10 to the 15 day, and took 28 in all; by the uſe of which the firſt puſtules arrived in five days to perfect fulneſs and maturation; and a ſecond eruption of puſtules ſucceeded, which render'd her blind, and were ſo very numerous, that the matter of them almoſt every-where ran together, and formed large abſceſſes underneath in various places: and though the diſcharge from the ulcers was very great, yet (as if this were not ſufficient to depurate the blood) there aroſe all over the body a great number of boils, inſomuch that the whole ſurface of the body was, as it were, one continued ulcer; to cover and defend which, three whole ſheep-skins were employed ſpread with *Cerat. de Lap. calamin.* and daily renew'd for a long time; it being two or three months, before all the ulcers were cicatrized.

Beſides the above-mention'd effects of the bark, it was obſerved greatly to invigorate and fortify her ſpirits, during the time of giving it, which was no longer than what I thought ſufficient to bring the matter

matter of the puſtules to a proper digeſtion. But this was not long enough to prevent a ſecond fever, which, I am inclined to believe, the continued uſe of the bark would have done, or at leaſt have much abated and ſhorten'd it. However, to guard againſt this fever, on the 15 day 8 ounces of blood were taken away: ſhe was likewiſe purged on the 16, 18, and 22. But, notwithſtanding this method of bleeding and purging, as far as her ſtrength would admit, the fever came on and increaſed.

I then tried her with 3 or 4 draughts of bark: but the fever not immediately giving way to this, I was afraid to proceed with it farther at that time. But the fever at length being attended with a *Coma*, and other dangerous ſymptoms, made me again doubt of her recovery.

This determined me to try the bark in earneſt againſt the fever, the extraordinary effects of which I had already experienced in the preceding ſtage of the diſeaſe. I therefore order'd a ſtrong decoction of *Cort. Peruv. Serpentar. Virgin. Croc. Coccinel.* which ſhe continued to take once in three or four hours for 24 days together; during which time ſhe took 17 ounces of bark, and was thereby freed from the fever intirely. After leaving off the bark, ſhe took 11 purges at proper intervals, and then left off taking any more medicines, being recovered to a more perfect health than before her illneſs, and ſo continued.

Give me leave to ſubjoin the caſe of a healthy young man, who, in July 1746, had the ſmall-pox by inoculation. The eruption came on at the right time;

time; but, three or four days after, in dreſſing the inciſions, three or four purple ſpots were obſerved about them, which occaſioned my being called in. I took notice, that the puſtules, which were very numerous, were here and there livid, and in the arms and thighs of a dark colour, tending towards a mortification. Whereupon I immediately preſcribed ʒſs. of bark to be given, and repeated once in three hours; which was accordingly done for eleven days ſucceſſively; during which time he took 47 doſes of bark, viz. in all, 3 ounces wanting half a drachm. It was really wonderful to ſee, how ſoon the bark alter'd the colour of the puſtules, brought them on to digeſtion, ſupported the patient's ſtrength, prevented a ſecond fever, and carried him thro' the diſeaſe without the leaſt difficulty, or bad ſymptom.

I am, *&c.*

VI. *A Method of making* artificial Magnets *without the Uſe of* natural *ones*; *communicated to the* Royal Society *by* John Canton, *M. A. & F. R. S. To which is prefixed the* Preſident's *Report.*

Read Jan. 17. 1750. AT a meeting of the Royal Society on Thurſday the 17 day of January 1750, the Preſident acquainted the gentlemen there preſent, that Mr. John Canton, one of their members, who had for a conſiderable time, and with great diligence,